Urban Sound Planning in Brighton and Hove

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Urban Sound Planning in Brighton and Hove

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Summary

Brighton & Hove is a thriving UK seaside city facing new and on-going noise issues. It is a destination city with a wide range of restaurants, bars and clubs, which, along with an impressive arts and cultural offer adds to the excitement and interest both for residents and visitors. Brighton provides support to the creative arts, attracts business and investment in the fabric of the city. Two key issues face Urban Planning. Balancing the needs of the tourist and night time economy against the demands of residents for a peaceful and quiet enjoyment of city centre residential areas and the challenge of designing and manage public spaces that embrace principles of Soundscape planning in a compact and densely populated city.

This paper will introduce different ways of tackling these problems which are shared and experienced by European cities using Urban Sound Planning. In particular, this paper reviews the introduction of Urban Sound Planning as a credible and valuable discipline, to work alongside design and management professionals of public spaces. In Brighton the SONORUS project compliments traditional disciplines in the planning process and delivers the benefits of integrating sound planning in public realm development projects. Planning and consultation work is currently taking place around the regeneration of a city centre linear park which is seriously compromised by traffic noise, as well as the regeneration of Brighton Rail Station environs and a local shopping district which experience similar problems.

1. Introduction

Recently, different issues related to the acoustic environment as perceived, experienced or understood by people in context (namely the Soundscape), have been investigated and discussed at an academic and administrative level in many cities around Europe [1]. The latest developments in soundscape studies are oriented at urban planning and design in support of sustainable development, improved quality of public realm and quality of life agenda.

The soundscape approach acknowledges that there is no ideal acoustic environment for every urban context: soundscape is about whether sounds are appropriate or not to a place as received by the listener in context.

To determine which soundscapes are appropriate, it has to be considered which activities the soundscape is likely to facilitate at a place: this is the crucial point where planning comes into play.

To include soundscape into urban planning and design, it is essential to understand the

relationship between sound and human activities in the urban environment [2,3].
It is likely that some sounds will not be compatible with a given number of human activities, according to the context (e.g. urban park, urban street-life, children's playground).

Over the last decade, several models have been proposed in order to characterise soundscape perception [4], however it has been often highlighted that there is a current need for case-study research, where soundscape design measures can be straightforwardly connected to acoustical, architectural, perceptual, and health outcomes. So far, the relatively low number of large-scale case studies has been referred to as one of the main reasons for which the soundscape approach has not been able yet to significantly impact on urban planning [5].
Policy makers are seeking examples of practical application cases that inspire and provide a foundation for soundscape approaches. It is actually more likely that urban sound planning will be integrated into policy via an "inductive" path, rather than implemented onto it through a legislative action.
The process underway in Brighton is a means of a close cooperation between local authorities and stakeholders, and with the support of basic research and other scientific disciplines such as acoustics, architecture, human geography, psychology, community safety and sociology.
This paper presents some of the local strategies for urban sound planning, implemented by Brighton and Hove City Council with support from the UK's Noise Abatement Society. Five practical experiences are reported:

(1) Valley Gardens Project – How the City Council integrates urban sound planning in its public realm development projects.
(2) West Street Story – How sound planning can help manage a chaotic and sometimes violent part of the city.
(3) Brighton Beach Tunnel – How well planned soundscapes can improve public behaviour, health and enjoyment of a specific context.
(4) Bartholomew Square Alley – use of sound and light to create a safer and interesting public route
(5) Providence Place Gardens – The integration of soundscape assessment into a regeneration project

2. The city of Brighton and Hove-Context

Brighton & Hove is a thriving UK seaside resort – the only UK city by the sea, and is facing new and on-going noise issues. It has a population of 290,000 attracting over 8 million tourist visitors a year.
Brighton has a thriving commercial centre and tourist industry which compliments a nationally significant arts and vibrant cultural district. These aspects of the city add to the excitement and interest for residents and visitors by day and night. Brighton provides support to the creative arts, attracts investment and enterprise in the fabric of the city. In terms of investment Brighton is rated at one of the top 3 cities in the UK for return per £1 GBP on investment. It is also a city designed and built in the Georgian era with road layouts and public areas more suited to a time before cars and other contemporary pressures. It is a lively city with a significant city centre resident population.
The approach to Urban Sound Planning must therefore balance the needs of the tourist and night time economy against the demands of residents for the peaceful and quiet enjoyment of residential areas and improved soundscape. This has required the city council to explore different ways of tackling and preventing the new noise issues along with the more usual noise problems shared by European cities and do so in a practical way.
Planning and consultation work is currently taking place around the regeneration of a city centre linear park (Valley Gardens) which is seriously compromised by traffic noise, as well as the regeneration of Brighton Rail Station environs and a local amenity area which experience similar problems. The Council has also recently become involved in research and remedies to tackle the impact of emergency vehicle sirens on neighbourhoods.
The Council is currently making many efforts to promote Urban Sound Planning as a credible and invaluable discipline in the design and management of its public spaces, alongside the more traditional inputs to the planning process.

3. Valley Gardens Project

The Valley Gardens project based in central Brighton offers a unique opportunity to develop how Urban Sound Planning can influence the planning, delivery and future management of a major city centre public realm project. It involves

the transformation and complete redesign of a major site within the city of Brighton [6].
Using sound as a resource rather than a waste product of poorly designed areas – this project seeks to minimise intrusive/unwanted noise, whilst at the same time introduce positive sounds.
As an associate partner in the SONORUS project [7], Brighton and Hove City Council included this place as a test site (Figure 1) for the network of Early Stage Researchers (ESRs) who are being trained by the consortium.

The ESRs trained by the SONORUS network are currently working with the city's planners, highway engineers and landscape professionals as well as exploring the areas potential to host cultural and arts based event of a temporary and permanent nature.
Key areas of contribution by the ESRs are:

(1) Leading research into alternative solutions to urban sound problems.
(2) Development of an approach to solving those problems that includes not only the traditional partners in urban design but also invites contribution from disciplines not normally associated with Soundscape management.
(3) Public engagement, in terms of listening to what problems are and arrive at realistic solutions.
(4) Address health and community safety issues associated with sound and noise.
(5) Developing and testing different sound based interventions contributes to the overall success of the Council's projects.

ESRs work alongside the Council's officers from a variety of disciplines who experience how sound and noise can contribute to the success (or failure) of a public space.

Figure 1. A picture of Valley Gardens, the test site selected within the SONORUS Project.

The involvement of SONORUS ESR's represents a significant development in the consideration of sound in the planning of a major public realm project in the city. It should be noted that this has been possible only because of the evidence base for its value has been built up and gained credibility from the following local scale projects that were commissioned to tackle specific issues and problems.

4. West Street story

The Brighton & Hove Soundscape project [8] wanted to tackle the negative impact of noisy anti-social behaviour – a consequence of the city's busy night time economy, with its concentration of city centre nightclubs, pubs and bars on West Street. Despite award winning safety initiatives with street pastors and safe space provision for young people, the noise aspect still needed addressing, without detracting from the atmosphere enjoyed by the majority of revellers.

The White Night festival produced by the city council co-commissioned a series of sonic artworks with the UK Noise Abatement Society (NAS) including a groundbreaking soundscape experiment and installation in West Street: called 'the most dangerous street in Brighton', in the heart of the city's clubbing district. The Council and the NAS worked with artists, environmental experts and local residents to produce a pilot scheme [8] creating a 3D immersive soundscape to improve crowd behaviour and public safety on West Street. A mixture of ambient live and recorded sounds were broadcast on West Street during the busiest night of the week. The live stream film of the event and subsequent video footage was analysed by psycho-biologist Dr Harry Witchel validating the concept. Results on the night showed a significant recorded drop in incidents of anti-social behaviour and related noise level complaints.

Brighton & Hove City Council's Soundscape project received national recognition at the Noise Abatement Society's John Connell Awards for a pioneering approach to city planning and multi-agency working.

5. Brighton Beach Tunnel

Brighton and Hove City Council and the Noise Abatement Society commissioned this night-noise intervention soundscape project [9], working in collaboration with Dr. Harry Witchel, to build on

the success of the West Street Story project. The goals of the current research project were to test the feasibility of making a music-based night-noise intervention and to gather preliminary data on the pro-social, territory-controlling effects of music in the unusual space of the Brighton Beach pedestrian tunnel in Brighton.

When open at night, this tunnel could have positive public safety effects by reducing night-time pedestrian traffic crossing the busy King's Road above it.

However, in the past this tunnel was associated with negative public safety effects due to anti-social behaviours and this problem led therefore to its closure.

Traditional methods using sound are to alienate and repel a target audience in the hope that will improve the amenity of a place – The Council's policy is not to exclude but to create positive uses and feelings of all to an area – thereby making it more inviting and safer due to increased use.

A music reproduction system was installed into the tunnel, as were three video surveillance cameras and a digital video recorder. The music interventions were played between the hours of 07:00 pm and 07:00 am on Thursday nights, Friday nights, and Saturday nights; for the duration of the pilot study, the tunnel was left open all night on these nights. Playlists of traditional, archetypal representatives of classical, jazz, and contemporary dance music (and silence) were cycled repeatedly to tunnel users, most of whom passed through the music intervention in approximately 30 seconds; the music was chosen to be non-aversive, and the played sound level was measured to have a L_{Aeq} ranging from 68 to 81 dB(A).

Extensive data were gathered in the form of video files; based on motion sensing, over 15,000 filmed episodes were recorded, with almost all of these having one or more individuals moving in the tunnel (Figure 2).

Figure 2. Example of motion tracking of a person walking in the Tunnel (source[9])

Preliminary results represent a progress report and an opportunity to prioritise further analysis. Analysis of the video data is a mixture of manual analysis and semi-automated video analysis based on computer-vision.

Classical music was found to diminish the surrogate measures of loitering compared to silence or other music. Faster tempo music led to faster walking speeds compared to slower music. The presence of music (at the tempi played) resulted in slower walking compared to silence (Figure 3).

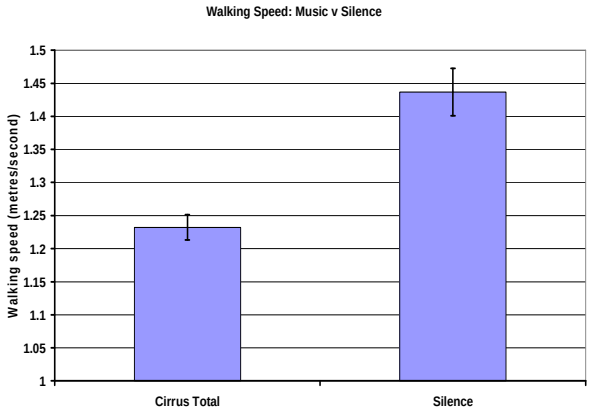

Figure 3. Difference in walking speed during music and silence (source [9])

Music also led to an unexpected effect of dancing in the tunnel.

In a daytime experiment, brief exposure to music led to an increase in charitable donations to collectors for the Martlets Hospice (Figure 4).

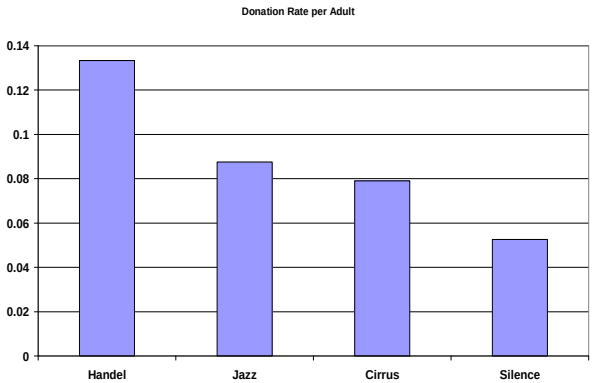

Figure 4. Rates of charitable donation after brief exposure to different excerpts of music (source[9])

At the end of the experiment, no vandalism or weather damage occurred to any of the equipment, suggesting that this intervention strategy can work in an open public space at night.

It is tentatively possible to conclude that this type of night noise intervention is technically feasible in an exposed space for months at a time, and that

different kinds of music can rapidly have a pro-social effect on the public.

6. Bartholomew Square Alleyway

This project set out to combine technology using both sound and light to improve the environment and make it a safer place. The alley you see below was in a poor state of repair and often used as a venue for public injecting, human faeces and urine were cleared daily and several serious assaults were associated with this alley – the murder of a homeless person in the square it serves should also be noted.

Apart from a complete redecoration the recesses and display windows were eliminated. The lighting was designed to eliminate hidden areas and most significantly a "ladder of Lights" was installed. These have the unique feature of being set to illuminate the area at a set intensity of light and incorporate sensors which intensify and "follow" a person as they travel through the tunnel. A speaker system plays a variety of music at a low level which has the effect of giving the area a feeling of management. Recently repainted to compliment the colour scheme of a nearby restaurant it further signals an ownership that formerly it did not. Results 4 years after the redesign show that it is rarely misused and is now attracts positive comments from pedestrians.

7. Providence Place gardens

In January 2012, Brighton and Hove City Council advertised a € 50,000 commission for a two week pilot project to improve the street and pocket park in front of St. Bartholomew's Church in Brighton (Ann Street/Providence Place Gardens). Submitted proposals were required to respond to the needs, desires and priorities of the community as identified in a preliminary report (2011). This document contained qualitative and quantitative data collected in respect of residents, users and visitors in the project area. It provided an overview of how the area was used and people's aspirations for transforming it into a safe and successful public space. The 'Common Room' resulted to be the winning project[10]: it provided a series of physical and environmental changes. These changes were aimed at preserving the tranquillity of the space, while creating opportunities for performance and social interaction.

The Brighton & Hove City Council Environment Improvement Team, with the advice and support from the Noise Abatement Society, performed two soundscape audits in 2011 and 2012, during the preliminary assessment and the two-weeks pilot project respectively. In both cases, two pre-established routes were used by volunteers to record the sounds of the project area. Considering the responses from surveys carried on in 2011 and 2012 and the key differences between each study period, the following themes emerged:

(1) The reduction in motor vehicles in the area following the introduction of weight restrictions and suspension of parking had a significant positive impact on reducing noise levels. Whereas the 2011 study focussed strongly on vehicle noise as a problem, the 2012 study accorded this far less prominence.

(2) Partly as a result of the reduced vehicle noise - and partly because the intervention encouraged greater levels of activity within the park - the 2012 study noted greater levels of human activity sound, and this was appreciated as a positive feature, indicating the success of stimulating greater levels of activity within the site.

The 2011 study recommended exploration of the use of 'natural' sounds, such as birdsong, running water to offset the hum of the air-conditioning and traffic noise from nearby streets. Although this topic was not explicitly explored in the 2012 study, comments around the impact of such background noise and a relative absence of sound within the park suggest that consideration of this kind of intervention to develop a positive soundscape may be of value in enhancing the ambience and amenity of the site in the future.

8. Conclusions

The practical experiences reported in this paper showed how the soundscape approach can help to mitigate anti-social behaviour and promote safety as well as quality of life through its ability to positively impact the psychological and physiological wellbeing of citizens. It can help to build social cohesion amongst residents, as they work together to clearly define the social use values of city spaces and agree together what

sounds are appropriate and when; and how to make provision for one another's requirements.

The current approach to the acoustic environment –based on sound levels and noise mitigation– needs to be complemented with urban sound planning that acknowledges the positive aspects of the acoustic environment.

Urban sound planning has a significant potential for city administrations as a complement to traditional noise mitigation strategies. Brighton and Hove City's foresight and commitment shows how practical approaches towards better local soundscapes can be integrated into policy at a local administrative level.

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